The epidemic of HIV infection in Wisconsin: overview of case surveillance data collected through 2004

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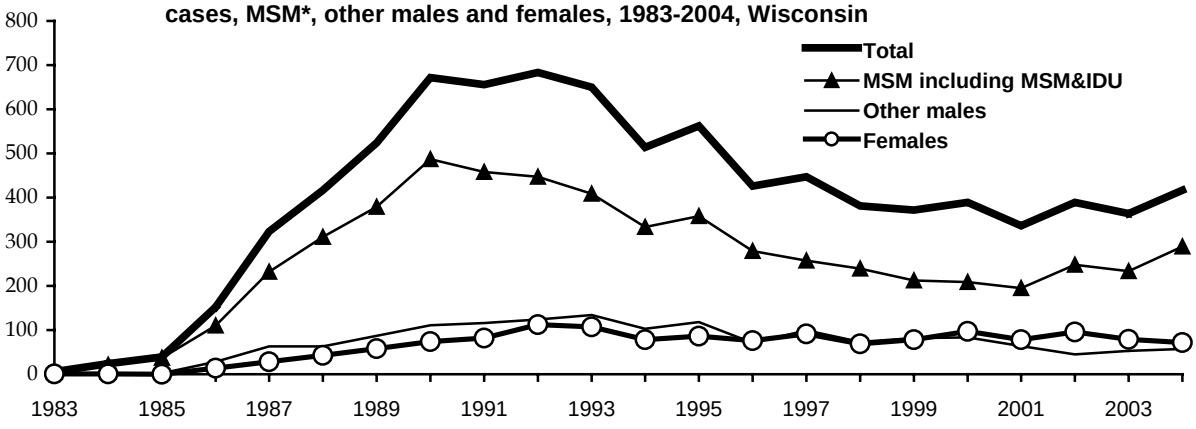
In the year 2004, 417 new cases of HIV infection[1] were reported in Wisconsin. This brought the cumulative number of cases of HIV infection reported in Wisconsin to 8,743. Among all reported cases, 5,690 met the Centers for Disease Control and Prevention (CDC) criteria for AIDS; 3,053 have HIV infection but did not meet the AIDS case definition at the end of 2004. Wisconsin has historically had a low rate of HIV/AIDS morbidity compared to other states. During the year 2003 (the latest year the national data is available), Wisconsin had the tenth lowest AIDS case[2] rate in the United States.

Trend in reported cases

In Wisconsin, the first cases of HIV infection were reported in 1983, and, throughout the 1980's, the number of reported cases of HIV infection increased each year (figure 1, see inside page 1). The decade of the 1990's marked a transition in the epidemic. During this period, the annual number of reported cases reached a peak between 1990 and 1993 (average: 665 cases) and thereafter began to decline. In 2001, 336 new cases of HIV infection were reported – the lowest number of cases since 1987.

Between 2002 and 2004, newly reported cases increased in two of three years. The 417 new cases of HIV infection reported in 2004 is the highest number of reported cases in Wisconsin since 1997 and represented an increase of 24% compared to 2001. This entire increase can be attributed to an increase among men who have sex with men (MSM) (figure 1). The number of reported cases among MSM increased by an estimated 48%.[3] Reported cases decreased by 11% among other males (i.e., non-MSM) and decreased by 8% among females.

Figure 1. Number of persons reported with HIV infection, by year of report, total cases, MSM*, other males and females, 1983-2004, Wisconsin



* Adjusted for cases initially reported with unknown risk.

Deaths among persons reported with HIV infection in Wisconsin have also declined from the historic peak. Ninety-five deaths among persons reported with HIV infection are known to have occurred in 2003, a 75%

[1] In this report, "HIV infection" refers to all persons with laboratory confirmed HIV infection. This includes both AIDS and non-AIDS cases.

[2] To compare HIV-related morbidity between states, it is necessary to use AIDS cases because not all states require reporting of non-AIDS HIV infection.

[3] Due to lack of acknowledgment of risk by individuals, incomplete reporting by clinicians, or reporting restrictions, some cases of HIV infection are initially reported without a risk-exposure. In this report, cases with unknown risk have been allocated statistically to risk groups. This adjustment assumes that the risk-distribution of cases without identified risk is the same as the risk-distribution of cases with known risk. As a consequence of this adjustment the numbers shown for individual risk groups are estimates.

decline compared to the 373 deaths the peak year 1993.[4] As a result of declining deaths, the number of persons reported with HIV that are presumed alive has continually increased. Over the past five years, this increase averaged 4% per year. At the end of 2004, 5,367 persons reported with HIV infection in Wisconsin were presumed to be alive, an all-time high.

Profile of cases reported 2000-2004

While HIV infection has occurred throughout Wisconsin, the effect of the disease has not been distributed evenly within all populations. Understanding recent patterns of disease distribution is important to the development of effective prevention strategies. This section provides a profile the 1,895 cases of HIV infection reported in Wisconsin between 2000 and 2004.

In Wisconsin, HIV infection is predominately a sexually transmitted disease with an important component related to injection drug use. Between 2000 and 2004, an estimated 55% of all reported cases of HIV infection were among MSM (table 1). High-risk heterosexual contact was the second most commonly reported risk exposure, representing 22% of all cases reported in this period. Injection drug use was reported by 14% of cases between 2000 and 2004; 7% of cases were among MSM who also reported injection drug use.

Table 1. Reported cases of HIV infection, 2000-2004, Wisconsin

	Cases	Percent	Average Rate*
Total	1895	100%	7.1
Sex			
Male	1473	78%	11.1
Female	422	22%	3.1
Race/ethnicity			
White	880	46%	3.8
African American	730	39%	48.6
Hispanic	240	13%	24.9
American Indian	16	1%	7.3
Asian/Pacific Islander	16	1%	3.6
Multi-racial	8	0%	3.1
Unknown	5	0%	-
Age at diagnosis			
<15 years	25	1%	0.4
15-24 years	277	15%	7.2
25-44 years	1288	68%	16.3
45 years or older	305	16%	3.2
Metropolitan categories			
Milwaukee MSA	959	51%	12.8
Dane County MSA	270	14%	12.7
Other Metropolitan Counties	404	21%	4.8
Non-Metropolitan Counties	223	12%	2.5
Corrections	39	2%	-
Risk-exposure estimates**			
Men who have sex with men (MSM)	1041	55%	-
Men who have sex with men/injection drug user (MSM&IDU)	131	7%	-
Injection drug users (IDU)	259	14%	-
High-risk heterosexual contact	421	22%	-
Other	42	2%	-

* Average annual number of reported cases of HIV per 100,000 population based on 2000 U.S. Census data. Denominator data not available for risk-exposure groups.
**Risk-exposure case numbers in this table have been adjusted to allocate cases initially reported without an identified risk factor. This allocation assumes cases without identified risk have the same risk-distribution as cases with known risk.

[4] Due to delays in reporting of deaths, an accurate estimate of total deaths in 2004 is not yet available.

Throughout the epidemic and continuing in recent years, males have constituted a substantial majority of persons reported with HIV in Wisconsin. Between 2000 and 2004, 78% of persons reported with HIV infection were male (table 1). This is primarily a consequence of the high number of MSM reported. Excluding MSM, the numbers of males and females reported with HIV infection were similar (figure 1).

HIV infection has had a disproportionate effect on minority populations in Wisconsin (figure 2). While racial/ethnic minorities comprise 12% of the Wisconsin population, 54% of persons reported with HIV infection between 2000 and 2004 were members of racial/ethnic minority groups. Between 2000 and 2004, the average annual rate (i.e., cases per 100,000 population) of reported HIV infection was 13-fold greater for African Americans, seven-fold greater for Hispanics, and nearly two-fold greater for American Indians compared to the rate among whites.

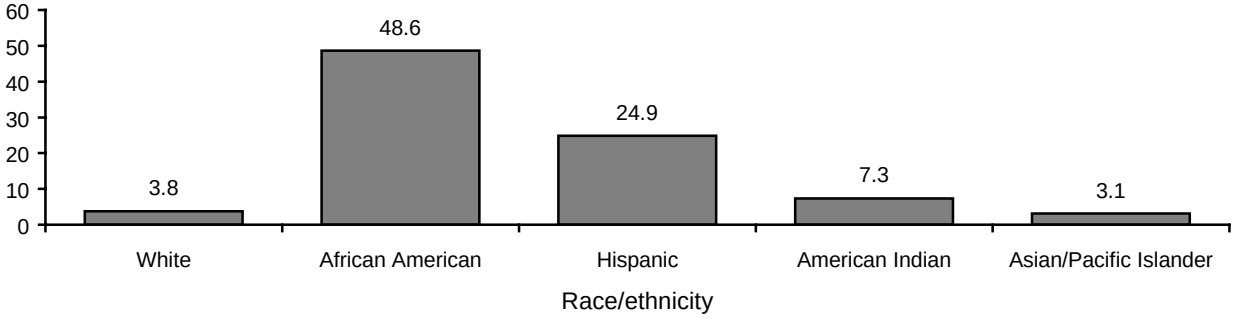
The race/ethnic disparity was even more pronounced for females. Between 2000 and 2004, 73% of females reported with HIV infection were members of race/ethnic minority groups. During these years, the average annual rate of reported cases for African American and Hispanic females was 35-fold and 14-fold greater respectively compared to white females.

The age-distribution of reported cases has been relatively consistent throughout the epidemic. For cases of HIV infection reported between 2000 and 2004, the median age at diagnosis of HIV infection was 34 years (range 0-78 years of age). Most (68%) persons reported with HIV infection were between the ages of 25 and 44 when they were first diagnosed with HIV infection (table 1).

It is important to note that the age at diagnosis of HIV infection is not usually the age when HIV infection was acquired. HIV infected persons often experience a long period during which they appear and feel healthy, allowing HIV infection to remain undiagnosed for years. The Centers for Disease Control and Prevention (CDC) estimates that in the United States at least one half of all persons with HIV infection acquired the disease before they were 25 years old.

Since the beginning of the epidemic, HIV infection has been reported from every county in Wisconsin. Among cases reported between 2000 and 2004, 51% were from the Milwaukee MSA.[5] The average rate of reported cases was similar in the Milwaukee MSA and the Dane County MSA; lower rates were observed in the other two metropolitan categories (table 1).

Figure 2. Average annual rate of reported HIV infection per 100,000 population, by race/ethnicity, Wisconsin, cases reported 2000-2004



Conclusion

The epidemiologic profile described in this analysis reiterates many of the findings from similar analyses in recent years. While an important component of the epidemic is associated with injection drug use, sexual transmission continues to be the dominant mode of HIV transmission in Wisconsin. Sexually transmitted HIV

[5]In this report, counties are classified into four metropolitan categories The Milwaukee MSA includes Milwaukee, Ozaukee, Washington and Waukesha counties. The Dane County MSA includes Dane County. Other metropolitan counties are Kenosha, Racine, Rock, Sheboygan, Brown, Outagamie, Winnebago, Calumet, La Crosse, Marathon, Eau Claire, Chippewa, St. Croix, and Douglas. All other counties are classified as non-metropolitan.

infection occurs both among heterosexual men and women, and among men who have sex with men, but the impact is not equal. Between 2000 and 2004, 2.5 cases of HIV infection were reported among men who have sex with men for every one case attributed to high-risk heterosexual behavior.

The “face” of HIV infection in Wisconsin remains predominately male, with an important minority of cases occurring among females. Persons with HIV infection continue to be diagnosed in their late twenties and early thirties, although most are probably infected in their late teens and twenties. HIV infection has occurred in all populations and all parts of the state. However, as the epidemic evolves, it continues to disproportionately affect racial and ethnic minority communities in Wisconsin.

While these characteristics are consistent with other profiles from recent years, analysis of the 2004 HIV surveillance data suggests an important new finding. After a decade long downward trend, the number of newly reported cases of HIV infection increased for two of the past three years. In 2004, the number of new cases reached the highest number in seven years.

The increase in reported cases was restricted to men who have sex with men, and reported cases among females and non-MSM males declined. This finding mirrors a national trend. The CDC HIV/AIDS Surveillance Report for the end of year 2003 showed that in 33 areas with name-based HIV infection reporting the number of newly diagnosed cases of HIV infection increased by 11% among MSM between the years 2000 and 2003. During the same time period, newly diagnosed cases decreased by 2% among females and decreased by 4% among other males (i.e., non-MSM).

It is important to exercise caution when interpreting the apparent recent increase in reported cases of HIV infection. Data from the Wisconsin HIV Counseling Testing and Referral Program shows that, between 2001 and 2003, the number of MSM tested increased by 27% and the number of MSM that tested HIV positive increased by 31%. Among females and non-MSM males, the number of individuals that tested positive declined by 16%. Thus, it is possible that some part of the increase in reported cases may be attributed to an increase in HIV testing among persons in high-risk groups.

Understanding trends in the incidence of HIV infection (i.e., new infections) is crucial to understanding the epidemic. Unfortunately, the current HIV testing technology routinely used to diagnose HIV infection cannot distinguish between recent and longer-duration infections. Thus, trends in HIV incidence cannot be directly ascertained from HIV surveillance data.

Other sources, however, clearly demonstrate a potential for increased incidence of HIV infection among MSM. Research conducted in other states suggests that some MSM may now be less concerned about becoming infected than in the past and thus may be more inclined to engage in high-risk behaviors. This may be particularly true for young MSM. In some areas drug use, especially use of methamphetamine, may play a role in a resurgence of high-risk sexual behavior.

Another concern nationally has been increasing syphilis rates. Syphilis facilitates the transmission of HIV infection and it may be a marker for increases in high-risk sexual behavior. In 2003, the number of primary and secondary syphilis cases in the United States increased for the third consecutive year. The CDC has reported that nationally 60% of syphilis cases in 2003 were among MSM. In Wisconsin the syphilis rate is low, however, there was an increase in early syphilis cases among males in 2002.

This analysis shows that Wisconsin has begun to see the increase in the number of men who have sex with HIV-infected men that was recognized earlier in other parts of the United States. Part of this increase may be related to an increase in HIV testing of persons in high-risk groups, part to other factors.

Wisconsin’s HIV surveillance data cannot clearly explain if an increased incidence of HIV infection among MSM results in increasing cases of HIV infection among MSM in Wisconsin. National studies, however, indicate that unprotected sex among MSM has re-emerged as a major public health concern. This suggests that part of the increase in reported cases among MSM may well be related to increased transmission of HIV among MSM in Wisconsin.

For a more comprehensive review of Wisconsin AIDS/HIV case surveillance data through 2003 as well as downloadable slides accompanying this review, visit the website of the Wisconsin AIDS/HIV Program at http://dhfs.wisconsin.gov/aids-hiv/index.htm.